WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 01K050

STATION NAME: Maple Cr. @ mouth

WATER YEAR: 2008-09

AUTHOR: Chuck Springer

Introduction

Watershed Description

Maple Creek is a higher elevation tributary that flows southward from Silver Lake before converging with the North Fork Nooksack River near river mile 49.7. The lower reach of Maple Creek, downstream of Maple Falls, is located in the N.F. Nooksack River floodplain. This reach is characterized by well-developed pool and riffle complexes, off-channel wetlands, and clean gravel substrate. Beaver dam complexes abound in the lower reaches as well. This reach supports populations of coho, steelhead, chinook, chum, char, pink, and sockeye salmon, as well as cutthroat and rainbow trout.

Gage Location

The Maple Creek gage is located on Whatcom Land Trust property across the creek from Wandering Waters Farm, south of the town of Maple Falls in Whatcom County, Washington. The gage is located immediately downstream of a small private bridge approximately 1000 ft. above the confluence with the N.F. Nooksack River.

Table 1.

Drainage Area (square miles)	12.0
Latitude (degrees, minutes, seconds)	48° 54' 51" N
Longitude (degrees, minutes, seconds)	-122° 4' 47" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	25.0
Median Annual Discharge (cfs)	23
Maximum Daily Mean Discharge (cfs)	84
Minimum Daily Mean Discharge (cfs)	1.5
Maximum Instantaneous Discharge (cfs)	91
Minimum Instantaneous Discharge (cfs)	1.5
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	45
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	4.0
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	36

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

This station began Water Year 2008 amid a prolonged low- to mid-range channel fill event. Two subsequent shifts followed prior to the station's removal in November 2008. The first was a low- to mid-range scour during a large storm event in January 2008. The second shift was a dramatic and prolonged low- to mid-range fill which may have been due to ongoing beaver-dam-building activity throughout the reach.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	1.0%
Weighted Rating Error (% of discharge)	14.5%
Total Potential Error (% of discharge)	15.5%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	7	8	9
Period of Ratings	10/1/07 - 11/14/07	10/1/07 - 1/14/08	1/9/08 - 9/3/08
Range of Ratings (cfs)	0 - 384	5.5 - 384	0 - 384
No. of Defining Measurements	7	4	7
Rating Error (%)	15.0%	16.0%	13.6

Rating Table No.	10	11	
Period of Ratings	7/22/08 - 10/15/08	10/3/08 - 11/19/08	
Range of Ratings (cfs)	0 - 384	1.5 - 384	
No. of Defining Measurements	3	3	
Rating Error (%)	11.8%	26.4%	

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

This station began water year 2008 amid a prolonged low- to mid-range channel fill event. Two subsequent shifts followed prior to the station's removal in November 2008. The first was a low- to mid-range scour during a large storm event in January 2008. The second shift was a dramatic and prolonged low- to mid-range fill which may have been due to ongoing beaver dam-building activity throughout the reach.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.00
Maximum Recorded Stage (feet)	3.1
Range of Recorded Stage (feet)	2.1
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	0
Number of Days Qualified as Unreliable Estimates	0

Narrative

This station logged continuously through Water Year 2008 until its removal in November 2008.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope-Conveyance
Range of Modeled Stage (feet)	6.0 - 8.0
Range of Modeled Discharge (cfs)	210 - 470
Valid Period for Model	WY 2005-2008
Model Confidence	±3%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station	4/7/2008

Activities Completed

Installed laser level as secondary stage index (SGI) on 4/7/2008.